other metal, a result quite in opposition to the idea, that the mere presence of the sulphuret on it could have caused the former powerful current and positive state of the copper (885, 866). A further proof that it is not the mere *presence,* but the *formation,* of the sulphuret which causes the current, is, that if the plate be left long enough for the solution to penetrate the investing crust of sulphuret of copper and corne into activity on the metal beneath, then the plate becomes active, and a current is produced.

887. I made some sulphuret of copper, by igniting thick copper wire in a Florence flask or crucible in abundance of vapour of sulphur. The body produced is in an excellent form for these experiments, and a good conductor; but it is not without action on the sulphuretted solution, from which it can take more sulphur, and the consequence is, that it is positive to platinum or iron in such a solution. If such sulphuret of copper be left long in the solution and then be washed and dried, it will generally acquire the final state of sulphuration, either in parts or altogether, and also be inactive, as the sulphuret formed on the copper was before (886); *i.e.* when its chemical action is exhausted, it ceases to produce a current.

888. *Native grey sulphuret of copper* has the same relation to the electrolyte: it takes sulphur from it and is raised to a higher state of combination; and, as it is also a conductor (808), it produces a current, being itself positive so long as the action continues.

889. But when the copper is *fully sulphuretted,* then all these actions cease; though the sulphuret be a conductor, the contacts still remain, and the circle can carry with facility a feeble thermo current. This is not only shown by the quiescent cases just mentioned (886), but also by the utter inactivity of platinum and *compact yellow copper pyrites,* when conjoined by this electrolyte, as shown in a former part of this paper (828).

• 890. *Antimony.*—This metal, being put alone into a solution of sulphuret of potassium, is acted on, and a sulphuret of antimony formed which does not adhere strongly to the metal, but wipes off. Accordingly, if a circle be

formed of antimony, platinum, and the solution, the antimony is positive in the electrolyte, and a powerful current is formed, which continues. Here then is another beautiful variation of the conditions under which the chemical theory can so easily account for the effects, whilst the theory of contacts cannot. The sulphuret produced